

REMARKS/ARGUMENTS

Initially, Applicants would like to express their appreciation to the Examiner for the detailed Official Action provided, for acknowledgement of Applicants' Information Disclosure Statement by return of the FORM PTO-1449, and for acknowledgment of the Applicant's Claim for Priority and receipt of the certified copy of the priority document.

Upon entry of the above amendments, Fig. 4 and claims 1, 2, 4 and 7-15 will have been amended, and claims 16-17 will have been added. Claims 1-17 are currently pending, with claims 9-15 being withdrawn from consideration in a previous Official Action. Applicants respectfully request reconsideration of the outstanding objection and rejections, and allowance of all the claims pending in the present application.

In the Official Action, the Examiner objected to Fig. 4, pursuant MPEP § 608.02(g), for not having a --Prior Art-- label. By the present amendment, Fig. 4 has been amended to include the above-noted label. Accordingly, the objection to Fig. 4 should be withdrawn.

In the Official Action, the Examiner rejected claims 1-5 and 7 under 35 U.S.C. § 102(b) as being anticipated by ZAKEL (U.S. Patent No. 6,070,788).

Although Applicants do not necessarily agree with the Examiner's rejection of the claims on these grounds, Applicants nevertheless have amended independent claims 1 and 4 solely to more clearly obviate the above-noted grounds of rejection in order to expedite prosecution of the present application. In this regard, Applicants note that ZAKEL fails to teach or suggest the combination of

elements as recited in amended claim 1. In particular, claim 1 as amended, sets forth a solder supplying method including, inter alia, dropping solder fine particles made of melted solder onto the substrate in the liquid, wherein a size range of the solder fine particles is within 3 μm to 15 μm in diameter.

Applicant submits that ZAKEL, alone or in any proper combination, fails to disclose at least the above-noted combination of elements.

In this regard, the Examiner cites to ZAKEL as purportedly teaching forming solder bumps (14) by depositing solder particles on a substrate. Additionally, the particles deposited on the substrate must pass through a screen (15). However, ZAKEL does not teach or suggest the diameter of the solder particles, much less the range of the solder fine particles being within 3 μm to 15 μm in diameter.

At least one advantage of a feature of a non-limiting embodiment of the present disclosure is, by providing solder fine particles within the range of 3 μm to 15 μm in diameter, a classification process can be performed based on the falling speed differences of the solder fine particles. Therefore, there is no need to pass the particles through a screen.

Applicants further note that larger solder fine particles have the disadvantage of having the likelihood to generate solder bridges when they come in contact with the substrate. Additionally, smaller solder fine particles have the disadvantage of having their surfaces easily oxidized. Thus, by selecting the solder fine particles to be in the above-noted range the generation of solder bridges and the deterioration of the solder wettability by the oxide film may be suppressed (see page 8, lines 7-20, of the present disclosure).

Applicants' further submit that independent claim 4, as amended, is generally similar to independent claim 1 in that it recites, inter alia, dropping solder fine particles onto a substrate, wherein a size range of the solder fine particles are within a range of 3 μ m to 15 μ m in diameter. Thus, independent claim 4 is allowable at least for reasons similar to independent claim 1, as discussed above. Accordingly, the rejection of claims 1-5 and 7 under 35 U.S.C. § 102(b) is improper for all the above reasons, and withdrawal thereof is respectfully requested.

Absent a disclosure in a single reference of each and every element recited in a claim, a *prima facie* case of anticipation cannot be made under 35 U.S.C. § 102. Since the applied reference fails to disclose each and every element recited in independent claims 1 and 4, as well as claims 2, 3 and 5-7 dependent therefrom, these claims are not anticipated thereby. Further, all pending dependent claims recite additional features that further define the present invention over the prior art. Accordingly, the Examiner is respectfully requested to withdraw the rejection under 35 U.S.C. § 102 and allow all pending claims in the present application.

In the Official Action, the Examiner has rejected claim 6 under 35 U.S.C. 103(a) as being unpatentable over ZAKEL in view of DEGANI et al. (U.S. No. 5,125,560); and Claim 8 under 35 U.S.C. 103(a) as being unpatentable over ZAKEL in view of SCHWIEBERT et al. (U.S. No. 5,880,017).

Applicant respectfully traverses the above noted rejections of claims 6 and 8 under 35 U.S.C. § 103(a). Applicants submit that dependent claims 6 and 8 are at least patentable due to their respective dependencies from claim 4 for the reasons noted above. In this regard, Applicants note that the Examiner has

provided no explanation or motivation for correcting the above-noted deficiencies in the teachings of ZAKEL. Applicant further submits that DEGANI and SCHWIEBERT do not provide any teachings which could reasonably be characterized as curing the above-noted deficiencies in the teachings of ZAKEL. Further, SCHWIEBERT appears to teach the minimum particle size diameter being set to 25 microns. In this regard, Applicants submit that DEGANI and SCHWIEBERT do not disclose at least the claimed dropping solder fine particles made of melted solder onto the substrate in the liquid, wherein a size range of the solder fine particles is within 3 μ m to 15 μ m in diameter.

Further, claims 2, 3 and 5-15 have been amended solely for cosmetic purposes (i.e., for easier reading and to be more consistent with the amendments made to the claims from which they depend). Therefore, no estoppel should be deemed to attach thereto. Additionally, claims 16-17 have been added to recite further features of embodiments of the present disclosure, no new matter is believed to have been added.

Further, Applicants request that, if and when the Examiner determines that independent claim 1 is in condition for allowance, the Examiner rejoin non-elected claims 9-15, and presumably newly-added dependent claims 16 and 17. In this regard, independent claim 9 (which has been withdrawn from consideration) is now dependent from independent claim 1, which has been examined on its merits.

In view of the remarks contained herein, Applicants submit that independent claims 1 and 4, and claims 2, 3, and 5-20 dependent therefore, are in condition for allowance.

Thus, it is respectfully submitted that all of the claims in the present application are clearly patentable over the references cited by the Examiner, either alone or in any proper combination, and an indication to such effect is respectfully requested, in due course.

SUMMARY

Applicants submit that the present application is in condition for allowance, and respectfully request an indication to that effect. Applicants have argued the allowability of the claims and pointed out deficiencies of the applied reference. Accordingly, reconsideration of the outstanding Official Action and allowance of the present application and all the claims therein are respectfully requested and is now believed to be appropriate.

Applicants note that this amendment is being made to advance prosecution of the application to allowance, and should not be considered as surrendering equivalents of the territory between the claims prior to the present amendment and the amended claims. Further, no acquiescence as to the propriety of the Examiner's rejection is made by the present amendment. All other amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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